

## Oak Ridge Schools

Excellence in Education Since 1943

#### The Future of Work

Video: The Future of Work: Will Our Children Be Prepared?

https://youtu.be/59lld3UZTUFQOyoutu.be/59d3UZTUFQ

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#### Workforce of the future...

- •"Never again is someone going to pay you to give them answers they can look up online. They'll only pay you to solve problems that don't yet have answers."
- -Seth Godin



#### STEM Education Stats

#### 1. STEM jobs are projected to grow 13%.

Between 2017 and 2027, the number of STEM jobs will grow 13 percent, compared to 9 percent for non-STEM jobs—with positions in computing, engineering, and advanced manufacturing leading the way. (Via <u>Change the Equation</u>)

Overall, since 1990, employment in STEM occupations has grown 79%-increasing from 9.7 million to 17.3 million. (Via <u>Pew Research Center</u>)

#### 2. The average median hourly wage for STEM jobs is \$38.85.

Compared to the median earning for all other types of jobs in the US - \$19.30 - STEM-related jobs pay exceptionally well. (Via <u>Change the Equation</u>)



#### STEM Education Stats

- 3. Out of 100 STEM occupations, 93% of them had wages above the national average. The national average for STEM job annual salaries is \$87,570, where the national average for non-STEM occupations sits at roughly half-\$45,700. (Via the <u>Bureau of Labor Statistics</u>)
- 4. US universities are expected to produce only 29% of the required number of grads. That is, to fill the 1.4 million computer specialist job openings. (Projected by the <u>US</u> <u>Department of Labor</u>)
- 5. 74% of middle school girls express an interest in engineering, science, and math... But only 0.3% choose computer science as a major when they get to college. (Via girlswhocode.org)



#### STEM Education Stats

- 6. Girls' interest in STEM peaks in middle school, but drops off in high school.
- A Microsoft survey conducted in Europe found that girls gain interest in STEM at age 11, but then lose that interest at age 15 (Via <u>Microsoft</u>). The combination of social factors and lack of access can be understood as culprits.
- 7. "African-American and Latino workers also now represent 29 percent of the general workforce population (up from about 24 percent in 2001)...
- But just 16 percent of the advanced manufacturing workforce, 15 percent of the computing workforce and 12 percent of the engineering workforce." (US News, 2015)
- 8. Minority women participation in STEM at the collegiate level:

Engineering, 3.1%; Physical Sciences, 6.5%, Mathematics, 5.4%, Computer Science, 4.8%. (Via the <u>National Girls Collaborative Project</u>)



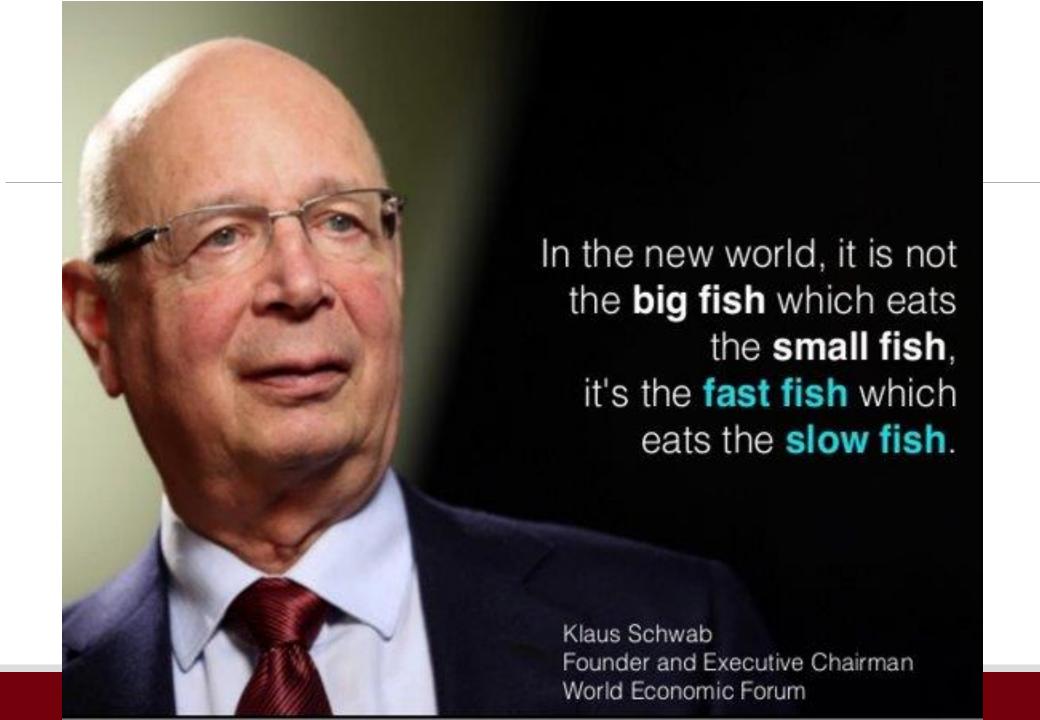
#### The Future of Work

•A report from the World Economic Forum (WEF) about the future of work informs us, "by one popular estimate, 65% of children entering primary school today will ultimately end up working in completely new job types that don't yet exist."

•"We are at the <u>beginning of a revolution</u> that is fundamentally changing the way we live, work and relate to one another.

- K. Schwab-World Economic Forum





## STEM in the Oak Ridge Schools

STUDENTS, TEACHERS, ENERGIZING MINDS



## Our History

- Manhattan Project
- •U.S. Atomic Energy Commission
- U.S. Department of Energy
- Oak Ridge National Laboratory
- •Y-12 National Security Complex
- Office of Science and Technical Information
- Oak Ridge Associated Universities
- Oak Ridge Institute for Science and Education













# Seven Keys To College and Career Readiness



## Key 7

All students participate in AP coursework, dual enrollment, industry certification, or military preparation program by graduation



## STEM-Based Learning

#### Tools, Resources, & Stakeholder The 4 Cs for College & Innovation & Involvement **Career Readiness Real World Problems Ongoing Support** Support each other Create and sustain a Include collaboration, Emphasize meaningful opportunities to through professional STEM-based learning communication. analyze and foster realdevelopment, sharing community culture. creativity, and critical thinking world problem solving. ideas, and opening as essential elements of classrooms college and career readiness.



## Problem/Project-Based Learning

**PBL** 







A little STEM project today in 7th Grade English. So many discoveries that relate to our Titanic novel study! @RMSortn @MichelleS64 @KirkRenegar





#### Tweet



STEM learning in ELA! Titanic learning! Design a life jacket to keep a can of soup afloat for 90 seconds. @PhillySixthTchr @RMSortn









#### Work Ethic Distinction for Oak Ridge Schools

- 1. Attendance Standard
- 2. Absence Standard
- 3. Tardiness Standard
- 4. Discipline Standard
- 5. Overall Grade Point Average Standard
- **6. Drug Free Standard**
- 7. CTE Coursework Standard
- **8. CTE Competition Standard**
- 9. TN Promise Standard
- 10. Dual Enrollment/Credit Standard
- 11. Industry Certification Standard
- 12. Enrollment in Post-Secondary Standard
- 13. Career Readiness Standard
- 14. Industry Awareness Standard



Did you know that DENSO
Manufacturing in Maryville just
requested a full list of our
seniors who complete the Work
Ethic Distinction? With this in
hand, they will guarantee an
interview!

densocareers.com/maryville

@stefthompson63

@ORHSCounseling



## Space ACT Agreement with NASA

NONREIMBURSABLE SPACE ACT AGREEMENT

• ≈ Between ≪

- The National Aeronautics And Space Administration
  - •George C. Marshall Space Flight Center

    - •Oak Ridge Board Of Education
      •≈ On behalf of ≪

      - Robertsville Middle School
  - •NASA-unique Science, Technology, Engineering, and Mathematics •(STEM) engagement activities for students



#### March 2, 2018

#### **NASA Announces Ninth Round of Candidates for CubeSat Space Missions**



## NASA has selected the following research satellites from seven states and Puerto Rico to fly as auxiliary payloads aboard space missions planned to launch in 2019, 2020, and 2021.

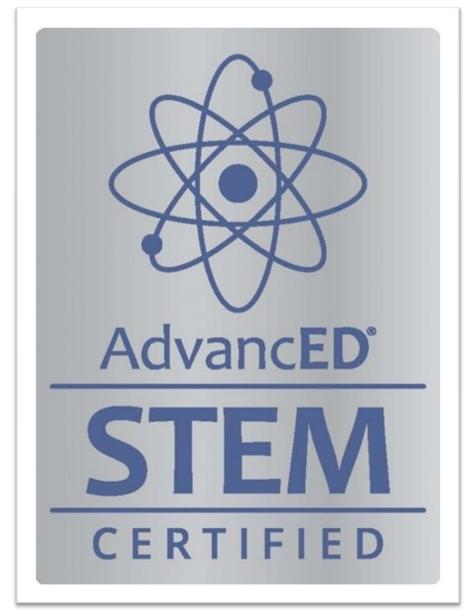
- Cornell University, Ithaca, New York
- •AMSAT, the Radio Amateur Satellite Corporation, Kensington, Maryland
- Embry-Riddle Aeronautical University, Prescott, Arizona
- •Inter American University of Puerto Rico, Bayamon
- Oak Ridge Public Schools, Oak Ridge, Tennessee RamSat
- University of California, Davis
- University of Cincinnati, Ohio
- •University High School, Irvine, California
- University of Kansas, Lawrence
- •The Aerospace Corporation, Los Angeles
- Massachusetts Institute of Technology, Cambridge
- NASA's Ames Research Center, Moffett Field, California
- •NASA's Marshall Space Flight Center, Huntsville, Alabama
- Ohio University, Athens
- University of California, Los Angeles
- University of Colorado, Boulder
- University of Michigan, Ann Arbor







### After Four Years of STEM Innovation

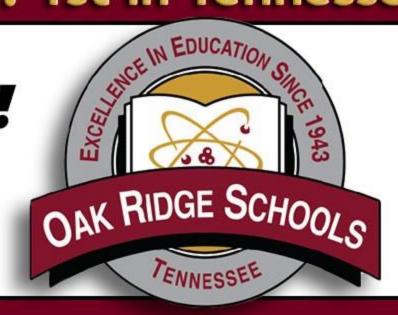


#### STEM Certified: 1st in Tennessee

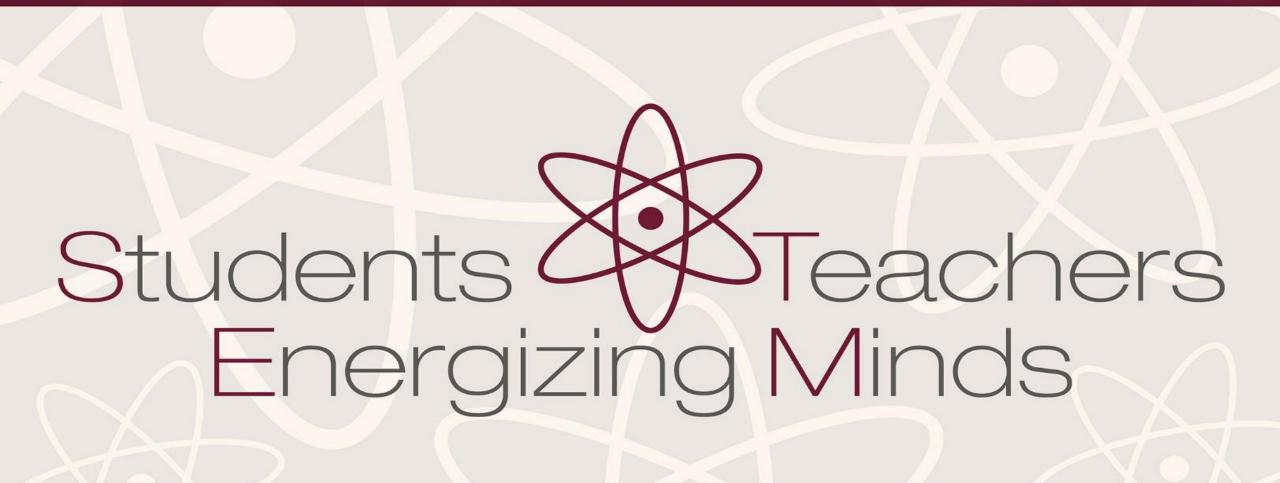












OAK RIDGE • SINCE 1943